

WOMEN'S HISTORY MONTH

Meet More Inspiring Women Leaders at NIH

In this second installment of a series on inspiring women leaders, the *Record* caught up with two administrators, a veterinarian and a staff scientist. They shared their backgrounds, how they found science and some of the challenges they continue to face in their careers. They also offered insights and sound advice.

A New Generation of Leadership

Ascending to the acting number two spot at NIH requires skill and determination. Dr. Tara Schwetz has both, and she inspires a younger generation of women seeking to advance their careers in science and policy.

Schwetz came to NIH more than a decade ago as an American Association for the Advancement of Science (AAAS) science



Dr. Tara Schwetz, NIH acting principal deputy director

and technology policy fellow right out of the lab. "I had always thought I would go into research and industry," she recounted. But then a new opportunity presented itself.

An AAAS fellow from NIH came to speak at Vanderbilt

University, where Schwetz had been conducting postdoctoral research on diabetes. Schwetz then found her calling—science

SEE **WOMEN**, PAGE 6

NIH Leadership Recognizes DRS Efforts During Pandemic

BY ERIC BOCK

At the latest "Gratitude Tour" stop, NIH leadership thanked ORS's Division of Radiation Safety (DRS) staff for ensuring radiation sources and radioactive materials used in biomedical research were handled safely during the pandemic.

"I want to express my gratitude for the countless hours you all have put in to keep the NIH community safe and to keep



Newbegin Devaraj (l) and Olumide Owoade of DRS's Radiation Safety Operations Branch

SEE **DRS**, PAGE 8



Covid era art installation? See p. 12.

ALSO THIS ISSUE

NIH'er Watches Signing of Historic Legislation at White House Event	3
Annual Khoury Lecture Set	5
Digest	9
Milestones	11
Seen	12

MIGHTY MICROFLUIDICS

Pompano Builds New Lymph Node Models

BY AMBER SNYDER

You may be painfully aware of the lymph nodes in your neck when you are sick with a cold. But did you know that they are just some of the roughly 600 lymph nodes found throughout the human body? Lymph nodes house immune cells and are important for fighting off infection.



Dr. Rebecca Pompano

But researchers have limited options for studying lymph nodes in the lab. Dr. Rebecca Pompano of the University of Virginia is working to change that. She recently

SEE **POMPANO**, PAGE 10



A highlight of the trip was a visit to the Chikankata Mission Hospital in Mazabuka.

SITE VISIT TO ZAMBIA

NINDS-FIC Team Sees 'Showcase of Amazing Neurological Research'

BY SHANNON E. GARNETT

A delegation of NINDS and FIC staff recently traveled to Zambia to conduct a site visit, meet with NINDS- and FIC-funded investigators and trainees and discuss research gaps, capacity needs and potential opportunities.

SEE **ZAMBIA**, PAGE 4

Work-Life@NIH Virtual Supervisor Peer Circles Continue

Are you a supervisor juggling too many balls in the air? Are you overloaded with the demands of work and home? Are you seeking an opportunity to meet and network with other supervisors?

If you answered yes to any of the questions, sign up to meet with other supervisors and discuss how to sustain your well-being at work and home via Supervisor Peer Circles.

Circles will be held weekly through Apr. 18. Each session will be facilitated by a mental health clinician for approximately 60 minutes. Sessions are limited to 15 participants on a first-come, first-served basis. Register at <https://bit.ly/3yhjuXC>.

Note: Circles are not therapy support groups and are not intended to provide treatment and/or recommendations. To speak to a professional, contact the NIH Employee Assistance Program at (301) 496-3164 or visit: <https://bit.ly/3ZHtDZ3>.

Take Your Child to Work Day Returns

NIH's 29th annual Take Your Child to Work Day (TYCTWD) returns Thursday, Apr. 27 from 9 a.m. to 4 p.m. ET. Parents and their children are invited to experience in-person, hands-on experiences as a part of this year's event, which also will include Earth Day activities. Virtual and prerecorded activities will be offered for remote workers and employees at other NIH locations.

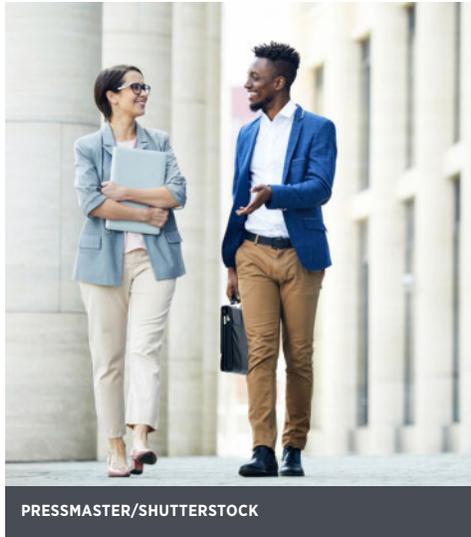
Look for emails announcing registration:
Mar. 20, 9 a.m.—Pre-registration
Mar. 28, noon—Registration phase 1
Apr. 4, noon—Registration phase 2

Volunteer opportunities will also be available for students in grades 9-12 to help with virtual activities. For details, visit: <https://bit.ly/3ZOhLEC>. Email questions and comments to Take-Your-Child-To-Work@nih.gov. The Office of Research Services is the primary sponsor of TYCTWD 2022.



EDI Features 'Women Who Tell Our Stories'

Join the NIH Office of Equity, Diversity and Inclusion in celebrating Women's History Month. This year's theme is "Women Who Tell Our Stories." Learn more about the women who contribute to and preserve the NIH legacy at: <https://bit.ly/3JhbM5P>.



PRESSMASTER/SHUTTERSTOCK

Reunited on Site

Are you and your co-workers back on site together? The *NIH Record* wants to publish photos of you and colleagues happily sharing the same space—office, lab or other work environment. Send your photo with a brief caption to nihrecord@nih.gov.

Child Care Board Recruits Members

The NIH Child Care Board seeks interested federal employees to fill multiple vacancies for the 2023-2026 term.

Consider attending a Q&A session to learn more about the board's advocacy for affordable, accessible and quality childcare for the NIH community and their advisement role to the NIH director on child and family programs and policies.

Q&A sessions will be held on Monday, Mar. 20 from 12:30 to 1:30 p.m. and Wednesday, Mar. 22 from noon to 1 p.m.

For additional information, contact Child and Family Program Manager Susan Borst at susan.borst@nih.gov.

BTK Study Seeks Volunteers

Pharmacologic therapy with Bruton's tyrosine kinase (BTK) inhibitors is associated with an increased risk of heart problems like atrial fibrillation, bleeding and high blood pressure (hypertension), which can lead to sudden death. There is currently no standard for cardiac screening or monitoring patients on BTK inhibitors. Researchers at NHLBI are investigating the relationship between the development of heart problems in patients on BTKi as it relates to other variables. Participants do not pay for tests, treatments or procedures. Travel may be reimbursed. Contact the Clinical Center Office of Patient Recruitment at (866) 444-2214 (TTY users dial 711) or ccopr@nih.gov. Refer to study #000923-H. Online: <https://bit.ly/414oewX>.

Metastatic Thyroid Cancer Study Recruits Participants

The standard treatment for thyroid cancer is radioactive iodine (RAI). How much RAI goes into the cancer cells? During this study, doctors will assess a new imaging tool—124I PET/CT—to evaluate how much iodine goes into the tumor. This study aims to compare how much iodine goes into cancer cells after two different methods of stimulation of RAI uptake. Imaging will be followed by therapy with RAI dose individualized to each patient. The NIDDK research team is seeking adult patients, ages 18 and older, with thyroid cancer that has spread outside the thyroid to lymph nodes, lungs or bones. All tests and procedures are provided at no cost. Travel and lodging assistance may be provided. For more information and enrollment, contact the Clinical Center Office of Patient Recruitment at (866) 444-2214 (TTY users dial 711) or ccopr@nih.gov. Refer to study #19-DK-0050. Online: <https://bit.ly/3rvni46>.

NHLBI Seeks Pregnant Women for Sickle Cell Study

A research study at NHLBI is looking for pregnant women between 18 and 45 years of age who are at risk of having an infant with sickle cell disease and women who are pregnant with no risk of having an infant with sickle cell to donate their baby's cord blood. Tests and procedures provided at no cost. Travel may be reimbursed. Contact the Clinical Center Office of Patient Recruitment (866) 444-2214 (TTY users dial 711) or ccopr@nih.gov. Refer to study #01-H-0122. Online: <https://go.usa.gov/xSQqW>.

Adults with Aplastic Anemia Needed

NHLBI seeks adults with severe aplastic anemia (SAA) for a research study determining viability and safety of early initiation of oral therapy with cyclosporine and eltrombopag in people with SAA. Compensation will be provided. For details, call the Office of Patient Recruitment at (866) 444-2214 (TTY users dial 711). Refer to study 20-H-0033. Online: <https://go.usa.gov/xwbDt>.

'A SPECIAL MOMENT'

NHLBI's Rodriguez Witnesses Signing of Marriage Law at White House

BY SHELEKA TURNBULL

Last December, President Joe Biden signed the Respect for Marriage Act—landmark legislation enshrining federal recognition of same-sex and interracial marriages into law.

Dr. Erik Rodriguez was among the more than 2,000 attendees who witnessed the signing of the legislation at a celebratory event on the South Lawn of the White House.

"This was a once-in-a-lifetime experience. It was a special moment that will be etched in my memory for years to come," said Rodriguez, staff scientist in the NHLBI lab of Dr. Eliseo Pérez-Stable, director of the National Institute on Minority Health and Health Disparities (NIMHD).

The bill has personal relevance for Rodriguez, who has been married to his husband for



Dr. Erik Rodriguez was among those who attended a celebratory event on the South Lawn of the White House.

Since the Supreme Court's ruling in Obergefell v. Hodges in 2015, same-sex marriage has been legal. But when the court overturned Roe v. Wade in summer 2021, it raised the alarm about what would happen to same-sex and interracial unions if the court also overturned those rulings.

As a result, there was a renewed drive for the bill to safeguard these unions; it passed through Congress quickly.

While this is a big step in the right direction, Rodriguez emphasized that more needs to be done for the LGBTQ+ community. For example, he noted that an amendment to the bill allows religious organizations to refuse to provide services, host or officiate wedding ceremonies that conflict with their beliefs. Additionally, he

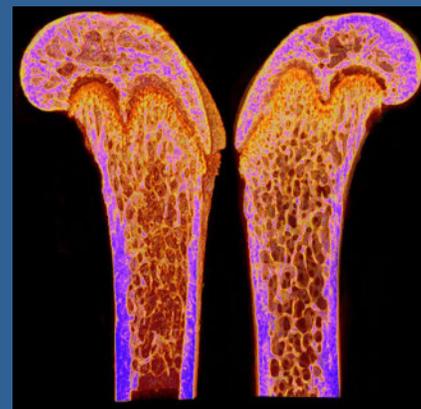
underlined the need for action around violence, equal access and equitable treatment of trans individuals.

In a recent blog, Pérez-Stable noted that sexual and gender minority (SGM) populations (including lesbian, gay, bisexual,

solidarity in Salutaris, the NIH Sexual and Gender Minority Employee Resource Group.

Initially established in the 1980s, Salutaris works toward cultivating an open and inclusive environment at NIH for all sexual orientations and gender identities. Through his participation, Rodriguez has seen NIH be supportive of LGBTQ+ staff and start to listen to their concerns.

"In light of the federal government's 'lavender scare' that started in the 1950s and their policies like 'Don't Ask, Don't Tell,' NIH is turning the corner and recognizes what equality and inclusion mean," Rodriguez says. **R**



ON THE COVER: Micro-computed tomography (micro-CT) reconstructions of femurs of 9-week-old male mice. Images are mid-bone sagittal sections with gradient colors corresponding to bone mineral density.

IMAGE: MARIA MORASSO/NIAMS LABORATORY OF SKIN BIOLOGY

• • •

"The signing...makes my marriage equal to everyone else's... It enshrines protections other marriages have had for a long time."

-DR. ERIK RODRIGUEZ

more than six years and partnered with him for more than 13 years.

"The signing is important to me in a couple of ways," said Rodriguez. "One, it makes my marriage equal to everyone else's, and two, it enshrines protections other marriages have had for a long time."

As he reflected on the day, Rodriguez said it was especially moving because he grew up in a homophobic community. The new law ensures federal marriage recognition regardless of sex, race, ethnicity, or national origin. It also repeals the Defense of Marriage Act, which established a federal definition of marriage as a "legal union between one man and one woman as husband and wife."

transgender, or queer) continue to face stigmatization, hate-related violence and discrimination.

As a result, NIMHD has invested resources that support research on the role discrimination plays in SGM health disparities. The institute has also collaborated with the NIH Sexual & Gender Minority Research Office and other agencies to commission a recently published study, "Measuring Sex, Gender Identity, and Sexual Orientation."

The study is an important resource to support much-needed standardized data collection on sexual orientation and sexual identity.

Since working at NIH, Rodriguez has found

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During the site visit, the NIH team attended the neurology residency training program's class of 2022 graduation celebration.

PHOTOS: KASAKULA KAUNDA

Zambia

CONTINUED FROM PAGE 1

Neurological disorders are very common worldwide, yet they disproportionately affect low- and middle-income countries (LMICs) like Zambia. And, like many LMICs, the sub-Saharan African nation has had limited access to neurological research and specialty care resources.

Although NINDS has long funded research in Zambia, until fairly recently the country had no locally trained neurologists. That all changed in 2018 when two U.S. scientists—Dr. Deanna Saylor, a neurologist at the Johns Hopkins University School of Medicine, and Dr. Gretchen Birbeck, a neurologist at the University of Rochester

Medical Center—developed the first-ever post-graduate neurology residency training program at the University of Zambia (UZ).

Today Zambia has nine locally trained neurologists and a thriving neuroscience research program. In fact, NINDS currently funds nine research projects conducted at the University Teaching Hospital (UTH) in Lusaka, Zambia's capital, the UZ, and the Chikankata Mission Hospital (CMH) in Mazabuka.

Research focuses on several leading health concerns in the region—stroke, malaria, epilepsy, HIV and traumatic brain injury (TBI). Projects include investigating hydration and stroke outcomes, evaluating treatments for malaria in the central nervous system, understanding TBI across

the lifespan and assessing long-term cognitive outcomes in children and adolescents with HIV.

During the site visit, which took place in January, the NIH team got a direct look at the research infrastructure that was made possible by NINDS funding and attended the graduation ceremony and reception for the neurology residency training program's class of 2022. The

delegation also toured research laboratories and facilities on the UTH and CMH campuses, discussed research challenges and opportunities with senior investigators, and networked with trainees and junior faculty.

Dr. Clinton Wright, director of NINDS's Division of Clinical Research (DCR) and member of the 7-person travel team, participated in a neurological symposium at the UTH Main Lecture Theatre.

"The symposium provided us with a showcase of the amazing neurological research on tuberculous meningitis, epilepsy, HIV and aging, stroke and other neurological disorders that is currently underway at UTH," Wright said.

Of special note was a visit to the CMH, located in Zambia's southern province.

"Visiting the hospital allowed us to see firsthand how neurological clinical care in a low-resourced, rural setting is enhanced with the improved research capacity-building resources," said Dr. Richard Benson, director of DCR's Office of Global Health and Health Disparities (OGHHD). "We also learned about the ongoing research on cerebral malaria, epilepsy and neuro-HIV being conducted there."

Dr. UnJa Hayes, program officer in FIC's Division of International Training and Research, noted, "We got a chance to meet members of the community, including Her Royal Highness Chieftainess Mwenda, and see how the research projects we fund work with the community to help underserved groups—like people with epilepsy—get the care they need while achieving research goals. It's all about relationships."



Dr. Richard Benson of NINDS chats with neurological trainees and medical students during a site visit to Zambia.



NINDS's Dr. Clinton Wright participates in a neurological symposium at the University Teaching Hospital in Lusaka, Zambia.

Before leaving the country, the NINDS delegation was joined by U.S. Ambassador to Zambia Mike Gonzales at a farewell dinner.

“We met many remarkable people throughout our trip,” said Dr. Janna Belser-Ehrlich, DCR chief of staff. “It was a real pleasure getting to know our colleagues in Zambia. We learned a great deal about research infrastructure and capacity, the health care system, the country’s culture and history, as well as NIH’s impact on international research.”

through FIC: Launching Future Leaders in Global Health Research Training Program and Chronic, Non-Communicable Diseases and Disorders Across the Lifespan.

In addition to Wright, Benson, Hayes and Belser-Ehrlich, other delegation members were: Stacey Chambers, an OGHHD scientific project manager; Dr. Bridgette Jeanne Billioux, an NINDS staff clinician; and Dr. Hanalise Huff, an NINDS global neuroinfectious disease fellow. **R**

As part of its mission to support global health equity, particularly in LMICs, NINDS participates in the FIC-led Global Brain and Nervous System Disorders Research across the Lifespan program. The effort supports collaborative research and capacity-building projects relevant to LMICs on brain and nervous system disorders throughout life.

NINDS also supports training programs in LMICs

Glaunsinger To Deliver Khoury Lecture, Mar. 29

Dr. Britt Glaunsinger, a noted expert in oncogenic herpesviruses, will deliver the annual George Khoury Lecture on Mar. 29 at 2 p.m. ET. Titled “Controlling the Message: Viral Manipulation of the Gene Expression Landscape,” the talk will be held in person in Lipsett Amphitheater, Bldg. 10, and online at <https://videocast.nih.gov/watch=45970>.



Dr. Britt Glaunsinger

Part of the Wednesday Afternoon Lecture Series (WALS), the event honors the memory of the late Khoury, past chief of the NCI Laboratory of Molecular Virology, highly regarded as a superb scientist and caring mentor.

Glaunsinger is a professor of molecular and cell biology at University of California, Berkeley, and a Howard Hughes Medical Institute investigator. She studies how viruses interface with infected cells and how they can hijack cellular machinery for their own use. Her research has revealed how virus-host interactions can have unexpected consequences for gene expression, providing insight into both virus and host biology.

Continuing Medical Education credits will be available. More information about WALS is posted at: <https://oir.nih.gov/wals>.—**Diana Gomez**

Scientific Workforce Diversity Seminar Set, Mar. 30

The Chief Officer for Scientific Workforce Diversity office is hosting its third Scientific Workforce Diversity Seminar Series event of the 2022-2023 season on Thursday, Mar. 30 from 2 to 3 p.m. ET.

“Outcomes from NASEM’s Advancing Antiracism, Diversity, Equity and Inclusion in STEMM Organizations Report” will feature co-chairs from an interdisciplinary committee at the National Academies of Sciences, Engineering and Medicine (NASEM) who will discuss findings from a consensus report.

Co-chairs will also share actionable strategies to advance antiracism, diversity, equity and inclusion in science, technology, engineering, mathematics and medicine (STEMM) workplaces and organizations.

To register, visit: <https://bit.ly/3KOWono>. The event will include closed captioning. Sign language interpreting services and other reasonable accommodation are available upon request using the registration form. For more information, visit: <https://bit.ly/3J7A6pR>.

Women

CONTINUED FROM PAGE 1

policy at NIH—and has since worked at multiple NIH institutes.

“[This path] gave me an opportunity to have a much broader impact than the research I was focused on specifically in the lab,” she said.

Schwetz, now acting principal deputy director of NIH, has co-led multiple NIH-wide efforts. She’s especially proud of her recent detail at the White House to help establish ARPA-H—a new agency to accelerate biomedical breakthroughs.

“I think it’s not often in someone’s career when you get to work on a project that ultimately goes from an idea into a fully funded and authorized entity,” she said. “It was great to...help shepherd that along, and to then have something you’re working on called out in the State of the Union is pretty exciting.”

When Schwetz talks to groups about job promotion and career transition, she advises people to push their boundaries. If you’re too comfortable, thinking that you’ll immediately know how to master a new job, she said, there’s little room to learn and grow. “If thinking about that move scares you just a little bit, it probably means you’re making the right call on your career path.”

Schwetz has always aspired to work in science. She initially wanted to be an anesthesiologist, but her love of the lab led her to graduate school, instead of medical school, and she ultimately received her doctorate in biophysics.

It was a challenge though for Schwetz to even contemplate college. Her parents had moved from a tiny, rural Michigan town to Florida just before she was born. Schwetz was the first person in her family to go to college and had to navigate the process on her own.

In the work world, she recognizes the stressors women face, from balancing work and family demands to confronting misogyny.

“There is still overt harassment that happens,” she said. “But I think probably what’s more pervasive are the little dismissive comments that ultimately add up.” She likened it to the sting of a paper cut versus the pain of a thousand paper cuts. These microaggressions impact women and other groups. NIH is actively working to change that culture.

“We need smart people to join our ranks from all different backgrounds and perspectives and career paths and areas of expertise,” she said. “I would encourage them to come join us.”—**Dana Talesnik**

Aklin Relishes Opportune Time to Work in Research

Health scientists—and those involved in biomedical research in particular—find themselves at a unique and promising juncture these days, according to Dr. Courtney Aklin, NIH acting associate deputy director. Post global historic pandemic, with an abundance of new and emerging data, tools and technology within reach, some vital new powers can be activated for human health. Aklin couldn’t be more enthused about the future.

“With Covid, there has definitely been a new floodlight on the importance of community engagement,” she says. “We are at a place where we can no longer just conduct research, put it into journals and then expect it to be put into practice...I think Covid showed very clearly, if you don’t include the community up front, if you don’t include the practitioners who are working with the community up front, then adoption of what we develop is going to suffer.”

As a behavioral psychologist, Aklin is excited about this new opening. “We now have an open opportunity,” she says. “There is a vast amount of research on how to engage and how to do community-engaged research. We can now leverage that. Same thing with health equity. There’s been research in the behavioral and social sciences on health equity for decades. We can now say, ‘Take a look, pay attention to it. Because we do have best practices. We do have an evidence base.’ I’m feeling like this is a great time. We’re finally getting closer to the integration of what needs to happen between the brain and neuroscience and behavioral science.”

Aklin arrived at NIH by way of NIMH

in 2005 as an AAAS technology and policy fellow.

“It was just at the time when autism was becoming recognized as a major diagnosis and the country was trying to figure out why there was such a rise in the number of diagnoses,” she recalls. “[Autism] was already there—we just didn’t have the refined tools that we have today to diagnose it very well... [HHS] had just set up the interagency autism coordinating committee and I came in

specifically to help infuse more data around it.”

That first taste of the federal science policy environment got Aklin hooked.

“I really ended up loving the impact that I could have—even as a fellow,” she remembers. “I learned that NIH is a really good platform to be able to move forward with a much bigger, broader perspective.”

Since then, the licensed clinical psychologist has held various posts of increasing

responsibility at NINDS and NIMHD, all the while carving out her current niche in NIH leadership. Simultaneously, she’s also found herself modeling an effective and fulfilling balance of family and career.

The solution, she believes, is to incorporate all facets of yourself into what you’re doing. Set boundaries for your time and attention and be productive with all 24 hours each day.

She advises anyone who asks to “learn what makes you successful and stay unique and true to yourself.”—**Carla Garnett**

Love for Animals Inspired Career

Even as a young child, Dr. Jill Ascher knew she wanted to be a vet. “I always loved animals,” she explained, then amended, “Actually, I love anything that moves.” She laughingly recalled taking tent caterpillars for rides around the block in her toy wagon.

A small animal and exotics veterinarian initially, Ascher focuses these days on devising strategic initiatives to update and improve Division of Veterinary Resources



Dr. Courtney Aklin, NIH acting associate deputy director



Dr. Jill Ascher, director, Division of Veterinary Resources, Office of Research Services

(DVR) for staff and for DVR collaborators and customers.

Ascher became a small animal doctor but was also drawn to exotics (animals like birds, reptiles and amphibians)—an arrangement that also lent itself well to parenting her three young children, because she could schedule exotics house calls around daycare and school.

She admitted that it was difficult in those years to balance parenting with her career, something that likely still rings true for many women today. At times, it felt like Ascher had to “pick between being a good parent and a good employee.”

Her children are young adults now, but she recalls the difficulty of being a working parent. NIH’s main campus has lactation centers for employees, and Ascher, working with a dedicated team of DVR and DOHS staff, was responsible for bringing that accommodation to the Poolesville, Md., campus.

After 15 years of working in private practice, she entered the field of laboratory animal medicine, progressing to deputy director of FDA’s Division of Veterinary Services before assuming her current role at NIH in 2018.

At DVR, Ascher sees herself as an enthusiastic collaborator with her peers and a mentor to colleagues who are earlier in their careers. “Having the respect of my colleagues...is [my] greatest professional achievement,” she shared. “No one is working for me—we are all working together.”

Her advice to aspiring scientists? Firstly, it’s “a great career for women,” she said.

More generally, she advised to pay attention in school, seek out mentors and essentially “be your own advocate.”

As Ascher’s own father told her, “Find out what your passions are and then work in that area. If you love what you do, then you won’t have to work a day in your life.”—

Amber Snyder

‘Bring a Different Conversation to Science’

Dr. Sue Fenton did not take the career path she had mapped out as a youngster.

“I was 100% sure that I wanted to be a veterinarian,” she says, “so, I went to the University of Wisconsin-Madison and majored in dairy science, taking as many hard-core science classes as possible... but, I [also] needed spending money. One of my friends showed me advertisements for open researcher positions in the animal sciences department. I didn’t realize this would happen, but I fell in love with research.”

The landscape for women in science careers looked a lot different then. Fenton appreciates the progress.

“There have been some very nice changes in the biomedical research field since I started in it,” she points out. “I remember doing my postdoctoral training and there were only three women [principal investigators] in our entire comprehensive cancer research center, and only one woman PI in the dairy and animal sciences departments. Now, the number of women who are leading labs has increased substantially. Wonderful to see! Women bring a different conversation to the science, as do persons of multiple races. This is especially the case in reproductive sciences, where there are many sex and race-related health disparities. I don’t think everyone appreciates that.”

Fenton was recruited to NIH in 2009 by an NIEHS pioneer.

“I was leading a research lab at the EPA,”

Fenton remembers, “and I specialized in research on chemicals affecting the female mammary gland that was gaining a great deal of attention. When Linda Birnbaum became the first woman director of NIEHS, she essentially rejuvenated the National Toxicology Program laboratory, and recruited me knowing that this topic was one that NIEHS needed to cover.”

These days Fenton is working to change the STEM landscape yet again. And she wants more people to be aware of the hurdles women in science still face.

“One thing that I feel really passionate about is creating opportunities for women from racial and ethnic minority groups to get the training experiences necessary to rise to leadership levels,” she says. “Many say they want the next wave of leaders/supervisors to look different, and to be multidisciplinary. Then, there’s a real need for recruitment that is purposeful—we need to recruit and promote women and women of color—so that we can have a different-looking next generation of women leaders in science.”

In addition, she sees other issues that could use improvement: how the scientific research enterprise assesses pay equity, for example, and how the STEM workforce can provide opportunities for advancement in transparent ways. “As a women scientist advisor representative at the NIEHS, I hope to enhance these areas,” Fenton explains.

And would-be women leaders have an active role to play in their own advancement, Fenton

concludes. “I have learned that women need to make sure they ask for leadership or management opportunities, if they’re not presented with them. Don’t sit back and wait for them to come.

“You have to go with your heart,” she says. “If you’re passionate about it, you can make it happen.”—**Carla Garnett**

The Women’s History Month profile series wraps up in the Mar. 31 edition. [R](#)



Dr. Sue Fenton, staff scientist, NIEHS Mechanistic Toxicology Branch



At the most recent “Gratitude Tour” stop, DRS Director Cathy Ribaldo (l) and Joe Cross (second from l) of the Materials Control and Analysis Branch enjoy kudos from NIH leadership. At right, Andrew Cabot of the Materials Control and Analysis Branch shares his story.

PHOTOS: LESLIE KOSSOFF

DRS

CONTINUED FROM PAGE 1

our biomedical and clinical research moving forward,” said NIH Acting Principal Deputy Director Dr. Tara Schwetz at the event held in a Bldg. 31 conference room. “Thank you all for the essential work that you do.”

DRS provides radiation safety guidance, regulatory compliance and risk management for biomedical and clinical research efforts. At NIH, radioactive materials are used for cancer treatments, biological research and in medical imaging. Most of the radioactive material at NIH is not dangerous if handled properly.

Even as the Covid-19 pandemic wanes, DRS staff continue to face challenges. They go above and beyond what’s required of them and continue to have each other’s backs under all circumstances, said Dr. Jessica Chertow, ORS associate director of scientific resources.

All members of the division are critical for ensuring that NIH meets its mission, she added. Without the expertise of staff

confirming that protocols are followed exactly, safety could be at risk.

Under the “vigilant watch” of DRS Director Cathy Ribaldo and her staff, “not a single individual exceeded allowable limits of radiation exposure in the last year,” ORS Director Colleen McGowan pointed out.



Office of Research Services
Director Colleen McGowan

In 2022, Schwetz noted, DRS analyzed almost 94,000 samples for radiological contamination, conducted 8,300 contamination and compliance surveys of NIH labs, scheduled annual safety inspections of 89 x-ray machines and taught 64 in-person training sessions.

All the while, staff had to ensure that NIH was in compliance with Nuclear Regulatory Commission mandates. Last year, inspectors from the commission visited to conduct a rigorous, multi-day review.

“We have been through quite a lot of challenges, especially over the last several years through the pandemic,” said Ribaldo. “I value each and every member of this division.”

DRS staff who spoke at the event described a supportive environment where co-workers regularly helped each other get the job done. Even though many NIH’ers were on maximum telework during the Covid-19 outbreak, radioactive materials still arrived at NIH. Last year, for example, more than 5,000 packages were delivered to campus.

For more than a year during the pandemic, only two employees were receiving, delivering and transferring radioactive materials. They had to be on site to accept shipments and sometimes personally transport them to Rockville, Poolesville or Baltimore.

When they needed help, their co-workers on other teams stepped up to keep shipments on schedule. In many cases, package deliveries wouldn’t have been delivered on time had colleagues not covered each other’s backs. They also worked together with clinical care staff to make sure patients at the Clinical Center were supported in their radiation therapy.

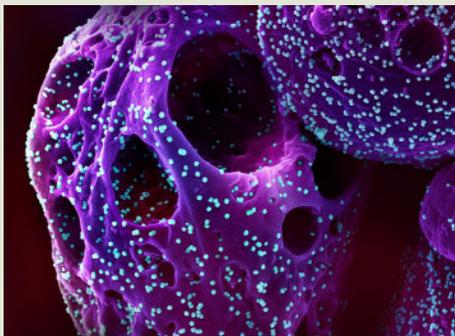
“I truly appreciate your hard work and commitment to advancing the NIH mission and helping to ensure safety at NIH,” concluded NIH Deputy Director for Management Dr. Alfred Johnson.



At left, the Division of Radiation Safety takes a photo at the event. At right, NIH Deputy Director for Management Dr. Alfred Johnson thanks the division for their efforts during the pandemic.

RECOVER Studies Identify Long Covid Disparities

Black and Hispanic Americans appear to experience more symptoms and health problems related to long Covid—a lay term that captures an array of health complications that persist after recovering from a Covid infection—than White people and are less likely to be diagnosed with the condition, according to new NIH-funded research.



Colorized scanning electron micrograph of a cell (purple) infected with the Omicron strain of SARS-CoV-2 virus particles (teal), isolated from a patient

IMAGE: NIAID

The findings, from two different studies by NIH's Researching Covid to Enhance Recovery (RECOVER) Initiative, add to a growing body of research aimed to better understand the complex symptoms and other issues associated with long Covid that millions have experienced.

In one analysis, published in the *Journal of General Internal Medicine*, researchers looked at the health records of 62,339 adults who received a positive Covid-19 test at one of five academic health centers in New York City, all between March 2020 and October 2021. They tracked the patients' health for one to six months after the positive test and compared the findings to 247,881 adults who never had Covid.

In the months following infection, Black adults with severe disease were more likely than White adults to be diagnosed with diabetes and experience headaches, chest pain and joint pain, but less likely to have sleep disorders, cognitive problems or fatigue. Similarly, Hispanic adults who required hospital care were more likely than White adults to have headaches, shortness of breath, joint pain and chest pain, but less likely to have sleep disorders, cognitive problems or fatigue.

Similar patterns emerged among people with mild to moderate disease. Among patients who were not hospitalized, Black adults were more likely to have blood clots in their lungs, chest pain, joint pain, anemia or be malnourished. Hispanic adults were more likely than White adults to have dementia, headaches, anemia, chest pain

and diabetes. Conversely, White adults were most likely to have conditions such as cognitive impairment (sometimes referred to as "brain fog") and fatigue.

In the second study, which published in *BMC Medicine*, researchers analyzed data from the electronic health records of 33,782 adults and children who received a diagnosis for long Covid between October 2021 and May 2022 at one of 34 U.S. medical centers.

Among the more striking findings: most of the patients were White, female, non-Hispanic and likely to live in areas with low poverty and greater access to health care. Given what researchers already knew about the disproportionate impact of Covid on people of color and economically disadvantaged populations, the findings stood out and suggest that not all patients who have long Covid are being diagnosed.

Potential New Therapy Seen for Upper-Limb Paralysis

In a small study, researchers used a device that stimulates the spinal cord to restore arm and hand mobility in two stroke patients, allowing them to perform daily life activities, such as using a fork to eat a meal. The study, published in *Nature Medicine*, was funded by NIH's Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative.



A research participant with a spinal cord simulation device grasps and moves a can.

PHOTO: TIM BETLER/UPMC AND UNIVERSITY OF PITTSBURGH SCHOOLS OF THE HEALTH SCIENCES

The technology uses a set of thin metal electrodes implanted on the surface of the spinal cord. Electrical impulses from the device stimulate neural circuits in the spinal cord, priming them to receive movement signals from the brain. This engages muscles that have been weakened by stroke, allowing patients to voluntarily lift their arm, open and close their fist, and grasp household objects.

In the two stroke patients, who had moderate to severe motor impairments, researchers found that continuous stimulation targeting the cervical sensory nerve roots of the spinal cord

immediately improved strength, range of motion and function of the arm and hand. Stimulation also enabled participants to perform complex tasks that require more skill and dexterity, such as using utensils to eat and opening a lock, activities they had not done in years.

Surprisingly, some benefits persisted for several weeks after the device was removed. This suggests that when combined with physical or occupational therapy, this assistive stimulation approach could lead to more robust long-term improvements in motor function.

Screening Tool Aims to Help Diagnose, Treat More People with COPD

A new tool shows promise in helping primary care physicians identify adults with undiagnosed chronic obstructive pulmonary disease (COPD), according to research published in *JAMA*.

COPD, a progressive inflammatory lung disease, is a leading cause of death in the United States. More than 15 million Americans have been diagnosed and experts predict millions more have it but don't know it.

The COPD Assessment in Primary Care to Identify Undiagnosed Respiratory Disease & Exacerbation Risk (CAPTURE), developed with support from NHLBI, was designed to identify adults with COPD symptoms severe enough to treat, but who haven't received a diagnosis.

After a multi-year-long clinical trial, researchers found CAPTURE successfully identified almost half of participants who had moderate to severe forms of previously undiagnosed COPD.

Conducted at seven U.S. clinical research network centers from October 2018 to April 2022, the trial involved 4,325 adults, ages 45-80. By the end of the study, researchers discovered that 110 participants, 2.5% of the study sample, had moderate to severe forms of COPD. CAPTURE identified 53, or 48%, of these cases. However, it provided false positives for 479 participants, 11%, who did not have COPD. All participants received COPD testing, which is how researchers assessed the tool's effectiveness.

While the researchers said they are studying ways to improve CAPTURE's accuracy, they emphasized the goal of the screening criteria is not to diagnose COPD, but to identify patients who would benefit from COPD testing. The gold standard for diagnosing the condition is through spirometry, a breathing test.

Larger studies are underway to further assess CAPTURE and how physicians use the tool in practice.



Pompano (l) and lab members work with samples.

Pompano

CONTINUED FROM PAGE 1

presented on her research in a lecture, “Modeling Vaccine Responses and Tumor Immunity Using Microfluidics,” hosted by the Biomedical Engineering Scientific Interest Group.

Historically, study of lymph nodes has been “kind of a niche field in immunology,” she said, and model systems are “lacking.” Her lab is developing groundbreaking technology to combine live lymph node tissue with microfluidic devices.

To some, Pompano might seem an unlikely scientist to pursue lymph node research. She received her doctorate in chemistry and only began working in immunoengineering during a postdoctoral fellowship. She has continued to conduct research in that area and her UVA lab works at the intersection of chemistry, engineering and basic science. Prior to Pompano’s research, most labs either used cells from crushed lymph node

tissue or studied lymph nodes in animal models. When she started her lab in 2014, Pompano was inspired by advances in microfluidics and wanted to incorporate it into her research. Microfluidic devices are tissue chips (3D-printed or made from silicone rubber) that move small amounts of fluid through the tissue via tiny channels.

From the Ground Up

Before they could even begin to use microfluidic devices, Pompano first had to figure out a method for obtaining tissue slices. Existing culture systems (using animal models, or removing the organs and crushing them up to measure the cellular secretions) were unsuitable.

Neuroscientists are familiar with brain slicing—a device is used to slice the organ into thin cross-sections and then the

slices are viewed under a microscope. Pompano’s lab adapted this technique for lymph nodes, using a vibratome—“essentially a \$20,000 bread slicer,” according to

Pompano—to cut the roughly 2-millimeter-long mouse lymph nodes. Then, the slices can be seen with a microscope or transferred to a microfluidic device. The segments are particularly useful for preserving the organs’ spatial structure while keeping them alive.

Pompano’s microfluidic devices were also established out of the need to develop a new method for local drug delivery to a piece of tissue.

Tissue chip technology has been around for several decades, but the Pompano lab adapted it for their own use in several ways.

First, they developed a system in which they could “co-culture” two pieces of tissue (such as a lymph

node slice and a tumor slice). They ran fluids through micro-channels in the chip to mimic the flow of interstitial fluids and carry secreted factors between the two tissue samples. This system was crucial for Pompano’s research, because, as she noted, “no organ is an island... particularly the lymph nodes.”

The team ran into several problems: the initial chips were made of silicone rubber and were very time-consuming and difficult to build. Also, the set-up required to pump fluid was complicated.

Pompano quickly realized that collaborators might not want to work with such a complex configuration in their own labs.

One of her Ph.D. students, Sophie Cook, redesigned the chips, using a 3D printer instead of silicone and employing technology from a common lab item—a magnetic stir plate—to move the fluid instead of bulky pumps. The resulting chip was far easier and quicker to construct—sembling in a matter of hours rather than days.

Asking New Questions

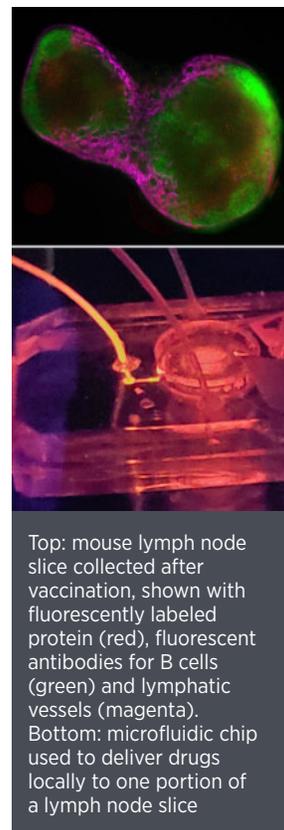
With these new research techniques, Pompano is able to investigate exciting new research questions.

She vaccinated mice in vivo with an egg-derived antigen called ovalbumin (abbreviated OVA), obtained lymph nodes four days later and sliced them. She treated these slices (plus unvaccinated control slices) with another OVA antigen that would fluoresce green if taken up by a cell.

She observed that the fluorescent antigen was picked up in both conditions, demonstrating that lymph node slices were capable

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“No organ is an island... particularly the lymph nodes.”
 ◆ ◆ ◆

—DR. REBECCA POMPANO



Top: mouse lymph node slice collected after vaccination, shown with fluorescently labeled protein (red), fluorescent antibodies for B cells (green) and lymphatic vessels (magenta). Bottom: microfluidic chip used to deliver drugs locally to one portion of a lymph node slice



Pompano (bottom row, r) and the Pompano Lab

of processing antigens even after vaccination.

The lymph node co-culture technology has potential for areas like tumor immunity research. Pompano and her colleagues co-cultured lymph node slices with either tumor slices or healthy fat tissue (from the same animal). The researchers then checked the lymph nodes' immune response by measuring T cell activation and one specific cytokine secreted by the T cells.

If the lymph node slice was co-cultured with healthy tissue, then the lymph node secreted plenty of cytokines, which is the normal response.

Interestingly, when tumor tissue was used instead of healthy tissue, Pompano saw a “small but significant reduction” in the amount of cytokines secreted. The immune response was suppressed, just like what happens in the body. Researchers think that suppression might contribute to why the immune system doesn't attack cancer cells, so it was exciting to see it replicated on the chip.

Ex Vivo Vaccination?

Another futuristic-sounding application is vaccination—of the microfluidic chips. This is still in progress, but preliminary research has yielded promising results.

In a typical vaccination, the antigen has to travel into the lymphatic system in order to produce an immune response. To mimic this process, Pompano pipetted a labeled antigen (representing a vaccine) into one tissue well and then watched to see if it would travel into the lymph node slice downstream from the injection slice. Four hours later, she saw the antigen had entered the lymph node slice.

Pompano continues to test this response in new studies.

Up Next: Human Immunity

Pompano and her group are also starting to study human immunity, using “waste” from common medical procedures such as tonsils and white blood cells (from platelet donations). Her future goals include using these human tissue sources in co-culture with other organs to study vaccines and infection, autoimmunity and tumor and brain immunity.

“There's [almost] too much to do,” she laughed. “It's a challenge and a joy.”

To view the archived lecture, visit <https://videocast.nih.gov/watch=48967>. 

Khalsa, Head of NCCIH Extramural Activities Division, Retires

BY ELLEN O'DONNELL

Dr. Partap Khalsa, director of NCCIH's Division of Extramural Activities (DEA), retired Dec. 31 after 16 years at NIH. As DEA director, he planned and led activities of scientists and technical support personnel within DEA to ensure quality, objectivity and accountability in the peer-review and grants-management processes for grants and contracts.



Dr. Partap Khalsa

In addition, Khalsa directed and coordinated activities to evaluate the performance of NCCIH's grant-review and management processes and the allocation of resources. He also served as executive secretary of the National Advisory Council for Complementary and Integrative Health.

Khalsa began his NIH career in 2006 as a program director in NCCIH's Division of Extramural Research (DER), where he administered the center's research portfolio related to manual therapies such as massage, soft tissue therapies, movement therapies, joint and spinal mobilization and spinal manipulation. The portfolio spanned research from mechanisms of action studies to translational tools and clinical trials, and focused primarily on musculoskeletal pain.

Khalsa also served as the NIH co-chair of the Task Force on Chronic Low-Back Pain and administered NCCIH's Centers of Excellence program in complementary and integrative therapies. He became deputy director of DER in 2014 and DEA director in 2017.

Khalsa received a doctor of chiropractic degree from Southern California University of Health Sciences. After practicing privately for a decade, he earned an M.S. in biomedical engineering from Boston University and a Ph.D. in biomedical sciences from Worcester Polytechnic Institute and the University of Massachusetts Medical School. He completed postdoctoral training in neurophysiology at Yale University.

Khalsa came to NCCIH from the State University of New York at Stony Brook, where he was associate professor and vice chairman in the department of biomedical engineering.

“Dr. Khalsa will be much missed,” said Dr. Helene Langevin, NCCIH director. “We honor his many contributions to NCCIH and across NIH. He brought unique expertise to NIH and has built a distinguished record of accomplishment in complementary and integrative health.”

After a nationwide search, Dr. Martina Schmidt has been named the new director of DEA. She was formerly director of the NCCIH Office of Scientific Review.



Margaritha Barbara Cole

Memorial Service Set for R&W's Cole

Margaritha Barbara Cole—who was the welcoming face of the R&W gift shop on the B1 level of Bldg. 31 for 27 years—died in 2020 at age 84. Plans for a memorial service had been put on hold due to the pandemic. The memorial service is scheduled for Saturday, Apr. 15 at noon at Rockville Presbyterian Church.

To make a memorial contribution, send donations to Special Love—Camp Fantastic: <https://speciallove.org/event/camp-fantastic/>.

Read more about Cole in the *NIH Record*: <https://bit.ly/3JhymeM>



Art in science? NCI's Cell Processing Modular Facility has become the canvas for an impromptu mosaic.

CREATIVITY IN THE COVID ERA Pandemic Patchwork Produced

“Art is never finished, only abandoned.” The quotation is attributed to Leonardo Da Vinci and some Bethesda campus denizens have adopted the spirit of the words.

In what can perhaps be called the “Covid crowd-sourced mosaic” genre, hundreds of passersby have abandoned their colorful check-in stickers on the outside grates of T30, NCI's Cell Processing Modular Facility. The pattern formed by the different colors appears not to be random, but thoughtfully created and continually honored by each successive contributor.

PHOTOS: BILL BRANSON



Another, abbreviated version on the south trail to Bethesda just outside NLM



Above, the makeshift Covid mosaic from a distance



A possible future nature photographer spotted these daffodils in bloom outside a greenhouse in Wheaton Regional Park. The *Record* wants to share your images of spring springing forth.

PHOTO: ETHAN TALESNIK, 7

In Search of First Signs of Spring

The *NIH Record* is looking for images that the season is changing. If you have seen any signs of spring where you work, take a quick pic and send the image to us with a short caption. Include your name and where you work. Email your hi-resolution image to nihrecord@nih.gov and you could see it in a future issue.



A heron in Seneca Creek State Park, Gaithersburg, Md., heralds the warming temperatures.

PHOTO: DEBORAH HENKEN